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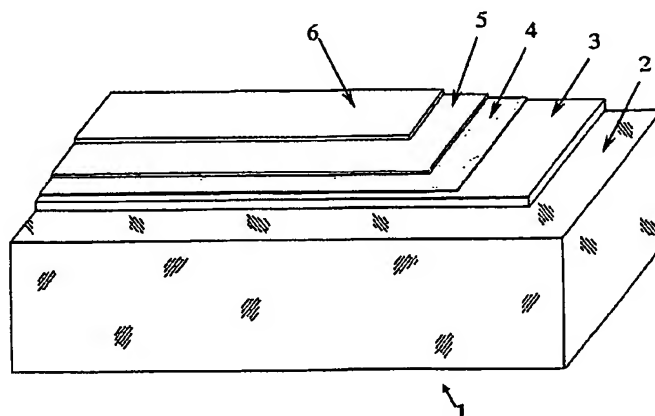
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AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
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[Continued on next page]

(54) Title: METHOD FOR PRODUCING A CONTINUOUS WATERPROOFING FLOORING

Table



(57) Abstract: The subject matter of the present invention is to provide a method for producing a continuous waterproofing flooring. This method consists in waterproofing a foundation (2) with the following coupled system: a) two component liquid applied waterproofing membrane (3) based on a hydraulic binders, with or without reinforcing fibrous base layer or matting (4), that provides for water vapor permeability and watertightness; b) polymer-based coating (6), with or without aggregates, constituting the visible side of the walkable and vehicle-suitable flooring, characterized by high water vapor permeability. The flooring thus obtained is a continuous flooring with characteristics of high water vapor permeability and watertightness and characterized in that it's non-slip, self-cleaning, not subject to yellowing, wear and tear resistant.

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Title

"METHOD FOR PRODUCING A CONTINUOUS WATERPROOFING FLOORING"

Description

Nowadays, in the building industry, the waterproofing of flat roofs, terraces, balconies and the like is performed by various methods, which can be distinguished according to the chemical nature of the covering. We'll now briefly analyse the performances of such covering in order to highlight those limitations which can be overcome by the present invention.

Bitumen-based waterproofing sheets

Bitumen-based waterproofing sheets are usually fixed to the roof by means of flame heating or self-adhesive systems. During manufacturing they can be coated with protective elements, as foils or coloured marble chips. These elements improve the appearance, the weatherability, the wear resistance and the tear resistance of the sheet. Nevertheless this material can't be considered a pedestrian or vehicle-suitable floor coating because of thermoplastic behaviour of bitumen with increasing temperature; in the summer, indeed, bitumen-based sheets, even though protected, are damaged and deformed by pedestrian or vehicle traffic. This material, moreover, is not water vapor permeable, so that it's impossible also for very small amount of liquid water to evaporate from foundation.

Polyvinylchloride-based and olefinic rubber-based waterproofing sheets

This material is made of very wide prefabricated rolled up sheets and it's sufficient to lay them on the roof, without any adhesive system, and cover them with gravel or earth to prevent any movement. But if you want to make a concrete or tile flooring on this waterproofing material, you have not negligible

additional cost due to the high cost of manual labour. Furthermore, neither of these sheets possess enough water vapor permeability to allow even the slightest percentage of water evaporation from foundation.

Resin-based waterproofing materials (two-component elastomeric polyurethane, one-component urethane, two-component epoxypolyurethane, polyester, two-component silicone resins and neoprene resins)

These materials possess characteristics of application that get close to the subject matter of the present invention; however, they show the following disadvantages:

- i) insufficient water vapor permeability to allow application on wet foundation (if applied at this condition, bubble forming and detachment of the resin coating from the lower layer will occur);
- ii) high cost of raw materials;
- iii) need of applying more than one coating of resin and aggregates, thus increasing manual labour cost;

Flexible two-component methacrylic resin-based waterproofing materials

These materials possess characteristics of application that get close to the subject matter of the present invention; however, they show the following disadvantages:

- i) difficulties of application on very porous foundation (these materials are not fit to permeate and strengthen surfaces that will eventually have little cohesion);
- ii) high cost of raw materials;
- iii) high flammability of the components;
- iv) high vapor pressure of the methacrylic monomer which implies a remarkable

- spreading of vapor and smell in the building site and the surroundings;
- v) a marked tendency of the coating to yellowing.

Latex-based waterproofing membranes (acrylic esters, styrene-acrylate, and acrylonitrile latices)

These materials are a considerable part of the liquid applied waterproofing products in today's market. They show the following disadvantages:

- i) insufficient permeability to water vapor to allow application on wet foundation (if applied on these conditions, bubble forming and detachment from foundation will occur);
- ii) minimum film forming temperature higher than $+7 + +8^{\circ}\text{C}$;

Liquid applied waterproofing membranes based on cement-latex mix

These materials are constituted by a powder part containing a cement binder, and by a conveniently formulated liquid part containing polymeric latices. The waterproofing system thus obtained guarantees the permeability to water vapor and the impermeability to liquid water, but it cannot be considered flooring system since it does not possess enough aesthetic characteristics and tear resistance; therefore it is necessary to apply a protective finish (e.g. tile covering).

There are patents that deal with continuous waterproofing covering systems and refer to the use of materials and to the limitations above mentioned.

Accordingly, mention is made of US 4,588,458, which discloses the use of a waterproofing membrane composed by a fibrous reinforcing base layer or matting impregnated with thermoplastic polymers-bitumen mix; GB 2193153, which discloses the use of a water vapor permeable felt constituted by non-woven fabric impregnated with bitumen on whose underside a film of perforated plastic

material is applied, and then a thin metal layer; US 4,897,313, which discloses the use of a waterproofing system composed by a first coating of butyl acrylate, styrene and acrylonitrile copolymer latex, and a prefabricated self-adhesive sheet of bitumen modified with elastic polymers; WO 01/72514, which discloses the use of covering panels composed by an upper coating of acrylonitrile, styrene and acrylic esters copolymers and of a lower coating of polyvinylchloride; US 5,422,179, which discloses the use of waterproofing polymeric sheets obtained by copolymerization of ethylene, vinyl esters and acrylic esters; DE 3342560, which discloses the use of waterproofing sheets made of olefinic rubber strengthened with a fibreglass matting; US 6,395,845, which discloses the use of epoxy resin-based waterproofing sheets; WO 94/04349, which discloses the use of flexible protective waterproofing sheets composed by a flexible polymeric foil impregnated with a cement binder-based material; EP 0794299, in which a reference is made about production method of flat covering can be obtained by applying two coatings of a cement binder-latex mix reinforced, in the middle, by a perforated polypropylene sheet.

A principal aim of the present invention is therefore to solve the described problems, eliminating the drawbacks of the mentioned prior art, by providing a method that allows the production of a continuous waterproofing flooring on flat roofs, terraces, balconies and other flat structures.

Within the scope of this aim, an important object of the present invention is to provide a continuous waterproofing flooring that can be applied on any surface, new or old, constituted by cement foundation, different kinds of tiles or natural and artificial stone coverings.

Another object of the present invention is to provide a continuous

waterproofing flooring that can be applied even on wet foundation and with temperatures down to +0.5 °C.

Another object of the present invention is to provide a continuous waterproofing flooring suitable for pedestrian and light vehicle use (with mass up to 3.5 tons), self-cleaning, nonslip, not subject to yellowing, wear and tear resistant.

Another object of the present invention is to provide a continuous waterproofing flooring that can be produced on site and in only two steps with a short interval of time between them.

This aim, these objects and others which will become apparent hereinafter are achieved by providing a method for producing a continuous waterproofing flooring, characterized in that it comprises the following steps:

- a) a first step consisting in laying, on a previously prepared foundation, a layer of two-component liquid applied waterproofing membrane based on a hydraulic binder-latex mix, or laying a layer of two-component liquid applied waterproofing membrane based on hydraulic binder-latex mix followed by the laying and impregnation with the same liquid mix of a fibrous reinforcing base layer or matting;
- b) a second step consisting in coating of the above described waterproofing membrane with a mix of polymers, additives, and eventually aggregates.

Further characteristics and advantages of the invention will become apparent evident from the following detailed description of a particular structure thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a perspective view of the flooring;

figure 2 is a sectional view of the flooring of figure 1.

With reference to the above figures, the reference numeral 1 designates a continuous waterproofing flooring for a previously prepared foundation 2 that is constituted by a base provided for example by means of a concrete casting.

The continuous waterproofing flooring is produced on site and entails the execution of both the above mentioned steps.

The first step consists in laying the layer 3 (two-component liquid applied waterproofing membrane based on a hydraulic binder-latex mix) on foundation 2. The two-component liquid applied waterproofing membrane based on a hydraulic binder-latex mix is composed of a mix of aggregates, additives, hydraulic binders, polymer latices and water obtained by mixing the dry and liquid components. Therefore the resulting material is composed of a mix of water, hydraulic binders and at least one polymer latex, for example styrene-acrylic esters latex. If necessary, just after the application of layer 3 is completed, you can proceed to lay a fibrous reinforcing base layer or matting 4 that can be constituted by non-woven fabric, felt, matting or any other structure that allows impregnation by and incorporation in layer 3; in this case it is advisable to lay on the fibrous reinforcing base layer or matting 4 a finishing layer 5 made of the same liquid mix. The interposition of the fibrous reinforcing base layer or matting 4 between the two layers of liquid mix allows to increase the tensile-strength characteristics of layer 3 and it should not alter the water vapor permeability of the system. Layers 3, 4 and 5 all together are waterproofing and water vapor permeable, so as to allow the laying of the system even on wet foundation. These characteristics are provided only by layer 3 when the liquid mix is applied without the fibrous reinforcing base layer or matting 4.

The second step consists in laying, on layer 5 (or 3, if the fibrous reinforcing base layer or matting 4 is not present), a pigmented or transparent mix of polymers and additives characterized by high water vapor permeability; this mix could eventually contain natural or artificial, coloured or not, aggregates.

The system obtained by laying the different components as described in the first and the second step, is the continuous waterproofing flooring, that is the object of the present invention.

The dimensions constituting the individual components of the product obtained with the present method can of course be the most appropriate according to the specific requirements.

Obviously, the method provided by the present invention is susceptible of changes, all of them being within the same inventive concept.

Claims

1. A method for producing a continuous waterproofing flooring characterized in that it's obtainable exclusively by coupling the appropriate materials in according to the laying steps hereafter specified:
 - 1.a) a first step consisting in laying on a previously prepared foundation a layer of two-component liquid applied waterproofing membrane based on hydraulic binders.
 - 1.b) a second step consisting in the coating of the above described waterproofing membrane with a mix of polymers and additives, so as to create the visible side of the walkable and vehicle-suitable flooring.
2. A method according to claim 1, characterized in that said waterproofing membrane is composed by a mix of aggregates, additives, hydraulic binders, polymer latices and water.
3. A method according to claim 1, characterized in that said waterproofing membrane is composed by at least one hydraulic binder.
4. A method according to claim 1, characterized in that said waterproofing membrane acts as a protection for foundation.
5. A method according to claim 1, characterized in that said waterproofing membrane acts as a waterproofing agent for foundation.
6. A method according to claim 1, characterized in that said waterproofing membrane acts as an adhesive for the finishing coating.
7. A method according to claim 1, characterized in that said waterproofing membrane can be reinforced by natural or synthetic fibres predispersed in the dry component of the mix; the possible addition of this element doesn't invalidate the claimed invention.
8. A method according to claim 1, characterized in that said waterproofing

membrane can be reinforced, during laying, by a fibrous base layer or matting constituted by non-woven fabric, felt, matting or any other material fit for the purpose, that can be impregnated on site; the possible addition of this element doesn't invalidate the claimed invention.

9. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is an acrylic polymer.
10. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is a styrene-acrylic ester copolymer.
11. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is an epoxy polymer.
12. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is a methacrylic polymer.
13. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is an unsaturated polyester resin.
14. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of a walkable and vehicle-suitable flooring, is a polyurethane resin.
15. A method according to claim 1, characterized in that the coating, constituting the visible side of the walkable and vehicle-suitable flooring, can be coloured or pigmented; the possible addition of colours or pigments don't invalidate the claimed invention.

16. A method according to claim 1, characterized in that the polymer resins in the coating, constituting the visible side of the walkable and vehicle-suitable flooring, can be mixed with any kind of aggregates; the possible addition of these aggregates don't invalidate the claimed invention.

AMENDED CLAIMS

[Received by the International Bureau on 02 OCT 2003 (02.10.03) ; original claims 1, 3 to 6, 8 and 15, amended ; original claims 9 to 14, unchanged; original claims 2, 7 and 16, cancelled]

1. A method for producing a continuous waterproofing flooring characterized in that it's obtainable exclusively by coupling two distinct layers in according to the laying steps hereafter specified:
 - 1.a) the first layer consisting in laying, on a previously prepared foundation, a composite system formed by a prefabricated fibrous reinforcing base layer or matting impregnated by a two-component liquid applied mix based on polymer latices and hydraulic binders;
 - 1.b) the second layer consisting in the coating of the above described first layer with a mix of polymers and additives, with or without any kind of aggregates, so as to create the visible side of the walkable and vehicle-suitable flooring.
3. A method according to claim 1, characterized in that said impregnating two-component liquid applied mix of the composite system is composed by at least one polymer latex and one hydraulic binder.
4. A method according to claim 1, characterized in that the first layer has the ability to bridge the cracks in the foundation without losing its waterproofing ability.
5. A method according to claim 1, characterized in that said impregnating two-component liquid applied mix of the composite system acts as a waterproofing agent for the foundation.
6. A method according to claim 1, characterized in that said impregnating two-component liquid applied mix of the composite system makes the prefabricated fibrous reinforcing base layer or matting adhere to the foundation.
8. A method according to claim 1, characterized in that said prefabricated fibrous reinforcing base layer or matting can be made of woven-non-woven materials obtained from staple or continuous fibre, chopped strand matting,

fibreglass net or net made of any kind of synthetic fibre, felt, mono-directional or multi-directional band made of carbon fibre, fibreglass or aromatic polyamides fibre, or any other material fit for the purpose.

9. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is an acrylic polymer.
10. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is a styrene-acrylic ester copolymer.
11. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is an epoxy polymer.
12. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is a methacrylic polymer.
13. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of the walkable and vehicle-suitable flooring, is an unsaturated polyester resin.
14. A method according to claim 1, characterized in that at least one component of the coating, constituting the visible side of a walkable and vehicle-suitable flooring, is a polyurethane resin.
15. A method according to claim 1, characterized in that the polymer resins in the coating, constituting the visible side of the walkable and vehicle-suitable flooring, can be transparent, coloured or pigmented.

STATEMENT UNDER ARTICLE 19 (1)

Claim 1 has been amended to highlight:

- a) the two distinct layers structure of the flooring, in contrast with the multilayer structure, described in JP56022685, which is obtained by bleeding effect during the solidification of the mixture in a not always reproducible and controllable manner;
- b) the importance of the prefabricated fibrous reinforcing base layer or matting (4 in fig. 1) in producing the first composite layer of the flooring.

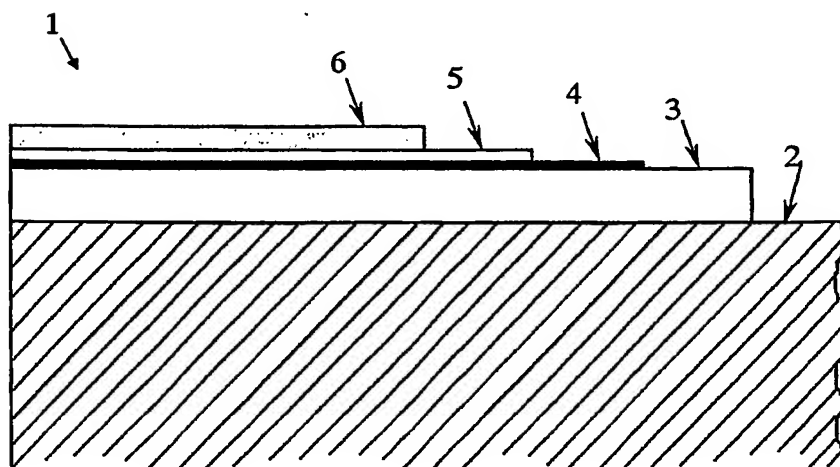
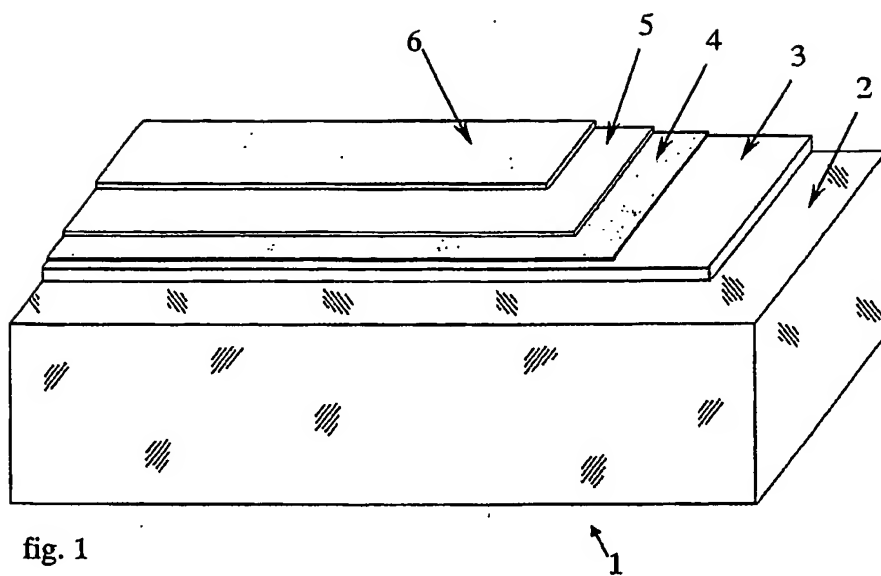
The two-component liquid applied membrane as originally described is no longer a component apart, but now it's the impregnating, waterproofing and adhesive agent of the composite system. In amended claims 3, 5 and 6 the two-component liquid applied impregnating mix must be considered under these aspects.

By virtue of the clear distinction between the two layers of the flooring, claims 9 and 10 are unchanged because even if the some ingredients cited in this application are the same of those ones cited in JP56022685, the modalities and the purposes by which they are used are surely different since the second layer (or upper layer) of this application has not to exhibit the same elastic properties of the upper layer as described in JP56022685. According to this the reference to color in amended claim 15 is not in contrast with JP56022685.

In amended claim 4 the idea of protection of the foundation is made clear in terms of crack bridging ability of the first composite layer, which must be waterproofing even if the underlying foundation cracks.

In amended claim 8 different kind of prefabricated fibrous reinforcing base layers or mattings used in the composite first layer are specified.

Table



INTERNATIONAL SEARCH REPORT

Internal Application No
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A. CLASSIFICATION OF SUBJECT MATTER		
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According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC 7	E04D	E04F E04B E01C
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 56 022685 A (SUMITOMO CEMENT) 3 March 1981 (1981-03-03) abstract	1-10, 15, 16 11-14
A	-----	
A	EP 0 794 299 A (VOLTECO S.P.A.) 10 September 1997 (1997-09-10) cited in the application column 2, line 40 -column 3, line 40; figures	1-9, 15, 16
<input type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 56022685 A	03-03-1981	JP 1207837 C JP 58043356 B	29-05-1984 26-09-1983
EP 794299 A	10-09-1997	IT TV960031 A1 AT 217377 T DE 69712395 D1 DE 69712395 T2 DK 794299 T3 EP 0794299 A1 ES 2175209 T3 PT 794299 T SI 794299 T1	08-09-1997 15-05-2002 13-06-2002 05-09-2002 17-06-2002 10-09-1997 16-11-2002 31-10-2002 31-08-2002



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30. April 2005

**Eintritt in die
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3. Vollmacht <input type="checkbox"/> Einzelvollmacht ist beigelegt. <input type="checkbox"/> Allgemeine Vollmacht ist registriert unter Nummer: <input type="checkbox"/> Allgemeine Vollmacht ist eingereicht, aber noch nicht registriert. <input type="checkbox"/> Die beim EPA als PCT-Anmeldeamt eingereichte Vollmacht schließt ausdrücklich die europäische Phase ein.	3. Authorisation Individual authorisation is attached. General authorisation has been registered under No: A general authorisation has been filed, but not yet registered. The authorisation filed with the EPO as PCT receiving Office expressly includes the European phase.	3. Pouvoir Un pouvoir spécial est joint. Un pouvoir général a été enregistré sous le n°: Un pouvoir général a été déposé, mais n'est pas encore enregistré. Le pouvoir général déposé à l'OEB agissant en qualité d'office récepteur au titre du PCT s'applique expressément à la phase européenne.

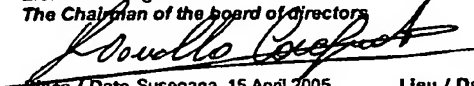
<input checked="" type="checkbox"/> 4. Prüfungsantrag Hiermit wird die Prüfung der Anmeldung gemäß Art. 94 EPU beantragt. Die Prüfungsgebühr wird (wurde) entrichtet. Prüfungsantrag in einer zugelassenen Nichtamtssprache (siehe Merkblatt III, 5.2) :	4. Request for examination Examination of the application under Art. 94 EPC is hereby requested. The examination fee is being (has been, will be) paid. Request for examination in an admissible non-EPO language (see Notes III, 5.2) :	4. Requête en examen Il est demandé que soit examinée la demande de brevet conformément à l'art. 94 CBE. Il est (a été, sera) procédé au paiement de la taxe d'examen. Requête en examen dans une langue non officielle autorisée (voir notice III, 5.2) :
<input type="checkbox"/> 5. Abschriften Zusätzliche Abschrift(en) der im ergänzenden europäischen Recherchenbericht angeführten Schriftstücke wird (werden) beantragt. Anzahl der zusätzlichen Sätze von Abschriften	5. Copies Additional copy (copies) of the documents cited in the supplementary European search report is (are) requested. Number of additional sets of copies	5. Copies Prière de fournir une ou plusieurs copies supplémentaires des documents cités dans le rapport complémentaire de recherche européenne. Nombre de jeux supplémentaires de copies
6. Für das Verfahren vor dem EPA bestimmte Unterlagen 6.1 Dem Verfahren vor dem EPA als Bestimmungsamt (PCT I) sind folgende Unterlagen zugrunde zu legen: <input checked="" type="checkbox"/> die vom Internationalen Büro veröffentlichten Anmeldungsunterlagen (mit allen Ansprüchen, Beschreibung und Zeichnungen), gegebenenfalls mit den geänderten Ansprüchen nach Art. 19 PCT <input type="checkbox"/> soweit sie nicht ersetzt werden durch die beigefügten Änderungen . <i>Falls nötig, sind Klarstellungen auf einem Zusatzblatt einzureichen!</i> 6.2 Dem Verfahren vor dem EPA als ausgewähltem Amt (PCT II) sind folgende Unterlagen zugrunde zu legen: <input checked="" type="checkbox"/> die dem Internationalen vorläufigen Prüfungsbericht zugrunde gelegten Unterlagen , einschließlich seiner eventuellen Anlagen (Solche Anlagen müssen immer beigefügt werden) <input type="checkbox"/> soweit sie nicht ersetzt werden durch die beigefügten Änderungen . <i>Falls nötig, sind Klarstellungen auf einem Zusatzblatt einzureichen!</i> <input checked="" type="checkbox"/> Sind dem EPA als mit der internationalen vorläufigen Prüfung beauftragten Behörde Versuchsberichte zugegangen, dürfen diese dem Verfahren vor dem EPA zugrunde gelegt werden.	6. Documents intended for proceedings before the EPO 6.1 Proceedings before the EPO as designated Office (PCT I) are to be based on the following documents: the application documents published by the International Bureau (with all claims, description and drawings), where applicable with amended claims under Art. 19 PCT unless replaced by the amendments enclosed. <i>Where necessary, clarifications must be submitted on a separate sheet!</i> 6.2 Proceedings before the EPO as elected Office (PCT II) are to be based on the following documents: the documents on which the international preliminary examination report is based , including its possible annexes (Such annexes must always be filed) unless replaced by the amendments enclosed. <i>Where necessary, clarifications must be submitted on a separate sheet!</i> If the EPO as International Preliminary Examining Authority has received test reports , these may be used as the basis of proceedings before the EPO.	6. Pièces destinées à la procédure devant l'OEB 6.1 La procédure devant l'OEB agissant en qualité d' office désigné (PCT I) doit se fonder sur les pièces suivantes : les pièces de la demande publiée par le Bureau international (avec toutes les revendications, la description et les dessins), éventuellement avec les revendications modifiées conformément à l'article 19 du PCT dans la mesure où elles ne sont pas remplacées par les modifications jointes. <i>Le cas échéant, des explications doivent être jointes sur une feuille additionnelle!</i> 6.2 La procédure devant l'OEB agissant en qualité d' office élu (PCT II) doit se fonder sur les pièces suivantes : les pièces sur lesquelles se fonde le rapport d'examen préliminaire international , y compris ses annexes éventuelles (De telles annexes sont toujours à joindre) dans la mesure où elles ne sont pas remplacées par les modifications jointes. <i>Le cas échéant, des explications doivent être jointes sur une feuille additionnelle!</i> Si l'OEB, agissant en qualité d'administration chargée de l'examen préliminaire international, a reçu des rapports d'essais , ceux-ci peuvent constituer la base de la procédure devant l'OEB.

<p>7. Übersetzungen Beigefügt sind die nachfolgend angekreuzten Übersetzungen in einer der Amtssprachen des EPA (Deutsch, Englisch, Französisch):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Im Verfahren vor dem EPA als Bestimmungsamt oder ausgewähltem Amt (PCT I + II): Übersetzung der ursprünglich eingereichten internationalen Anmeldung (Beschreibung, Ansprüche, etwaige Textbestandteile in den Zeichnungen), der veröffentlichten Zusammenfassung, und etwaiger Angaben über biologisches Material nach Regel 13^{ter}.3 und 13^{ter}.4 PCT <input type="checkbox"/> Übersetzung der prioritätsbegründenden Anmeldung(en) <input checked="" type="checkbox"/> Es wird hiermit erklärt, daß die internationale Anmeldung in ihrer ursprünglich eingereichten Fassung eine vollständige Übersetzung der früheren Anmeldung ist (Regel 38(5) EPU) <input checked="" type="checkbox"/> Zusätzlich im Verfahren vor dem EPA als Bestimmungsamt (PCT I): Übersetzung der nach Art. 19 PCT geänderten Ansprüche nebst Erklärung, falls diese dem Verfahren vor dem EPA zugrunde gelegt werden sollen (siehe Feld 6) <input type="checkbox"/> Zusätzlich im Verfahren vor dem EPA als ausgewähltem Amt (PCT II): Übersetzung der Anlagen zum internationalen vorläufigen Prüfungsbericht 	<p>7. Translations Translations in one of the official languages of the EPO (English, French, German) are enclosed as crossed below:</p> <ul style="list-style-type: none"> <input type="checkbox"/> In proceedings before the EPO as designated or elected Office (PCT I + II): Translation of the international application (description, claims, any text in the drawings) as originally filed, of the abstract as published and of any indication under Rule 13^{ter}.3 and 13^{ter}.4 PCT regarding biological material <input type="checkbox"/> Translation of the priority application(s) <input type="checkbox"/> It is hereby declared that the international application as originally filed is a complete translation of the previous application (Rule 38(5) EPC) <input checked="" type="checkbox"/> In addition, in proceedings before the EPO as designated Office (PCT I): Translation of amended claims and any statement under Art. 19 PCT, if the claims as amended are to form the basis for the proceedings before the EPO (see Section 6) <input type="checkbox"/> In addition, in proceedings before the EPO as elected Office (PCT II): Translation of any annexes to the international preliminary examination report 	<p>7. Traductions Vous trouverez, ci-joint, les traductions cochées ci-après dans l'une des langues officielles de l'OEB (allemand, anglais, français) :</p> <ul style="list-style-type: none"> <input type="checkbox"/> Dans la procédure devant l'OEB agissant en qualité d'office désigné ou élu (PCT I + II): Traduction de la demande internationale telle que déposée initialement (description, revendications, textes figurant éventuellement dans les dessins), de l'abrégé publié, et de toutes indications visées aux règles 13^{ter}.3 et 13^{ter}.4 du PCT concernant le matériel biologique <input type="checkbox"/> Traduction de la (des) demande(s) ouvrant le droit de priorité <input type="checkbox"/> Il est déclaré par la présente que la demande internationale telle que déposée initialement est une traduction intégrale de la demande antérieure (règle 38(5) CBE) <input checked="" type="checkbox"/> De plus, dans la procédure devant l'OEB agissant en qualité d'office désigné (PCT I): Traduction des revendications modifiées et de la déclaration faite conformément à l'article 19 du PCT, si la procédure devant l'OEB doit être fondée sur les revendications modifiées (voir la rubrique 6) <input type="checkbox"/> De plus, dans la procédure devant l'OEB agissant en qualité d'office élu (PCT II): Traduction des annexes du rapport d'examen préliminaire international
<p><input type="checkbox"/> 8. Biologisches Material Die Erfindung bezieht sich auf bzw. verwendet biologisches Material, das nach Regel 28 EPU hinterlegt worden ist.</p> <p><input type="checkbox"/> Die Angaben nach Regel 28(1)c) EPU (falls noch nicht bekannt, die Hinterlegungsstelle und das (die) Bezugszeichen (Nummer, Symbole usw.) des Hinterlegers) sind in der internationalen Veröffentlichung oder in der gemäß Feld 7 eingereichten Übersetzung enthalten auf:</p> <p>Seite(n) / Zeile(n)</p> <p>Die Empfangsbescheinigung(en) der Hinterlegungsstelle</p> <p><input type="checkbox"/> ist (sind) beigefügt</p> <p><input type="checkbox"/> wird (werden) nachgereicht</p> <p><input type="checkbox"/> Verzicht auf die Verpflichtung des Antragstellers nach Regel 28(3) EPU auf gesondertem Schriftstück</p>	<p>8. Biological material The invention relates to and/or uses biological material deposited under Rule 28 EPC.</p> <p>The particulars referred to in Rule 28(1)(c) EPC (if not yet known, the depository institution and the identification reference(s) [number, symbols etc.] of the depositor) are given in the international publication or in the translation submitted under Section 7 on:</p> <p>page(s) / line(s)</p> <p>The receipt(s) of deposit issued by the depository institution</p> <p><input type="checkbox"/> is (are) enclosed</p> <p><input type="checkbox"/> will be filed at a later date</p> <p>Waiver of the right to an undertaking from the requester pursuant to Rule 28(3) EPC attached.</p>	<p>8. Matière biologique L'invention concerne et/ou utilise de la matière biologique, déposée conformément à la règle 28 CBE.</p> <p>Les indications visées à la règle 28(1)c) CBE (si non encore connues, l'autorité de dépôt et la (les) référence(s) d'identification [numéro ou symboles etc.] du déposant) figurent dans la publication internationale ou dans une traduction produite conformément à la rubrique 7 à la / aux:</p> <p>page(s) / ligne(s)</p> <p>Le(s) récépissé(s) de dépôt délivré(s) par l'autorité de dépôt</p> <p><input type="checkbox"/> est (sont) joint(s)</p> <p><input type="checkbox"/> sera (seront) produit(s) ultérieurement</p> <p>Renonciation, sur document distinct, à l'engagement du requérant au titre de la règle 28(3) CBE.</p>

<p>9. Nucleotid- und Aminosäuresequenzen Die nach Regeln 5.2 und 13^{ter} PCT sowie Regel 111(3) EPÜ erforderlichen Unterlagen liegen dem EPA bereits vor.</p> <p><input type="checkbox"/> Das schriftliche Sequenzprotokoll wird anliegend nachgereicht.</p> <p><input type="checkbox"/> Das Sequenzprotokoll geht nicht über den Inhalt der Anmeldung in der ursprünglich eingereichten Fassung hinaus.</p> <p><input type="checkbox"/> Der vorgeschriebene Datenträger ist beigelegt.</p> <p><input type="checkbox"/> Die auf dem Datenträger gespeicherte Information stimmt mit dem schriftlichen Sequenzprotokoll überein.</p>	<p>9. Nucleotide and amino acid sequences The items necessary in accordance with Rules 5.2 and 13th PCT and Rule 111(3) EPC have already been furnished to the EPO.</p> <p>The written sequence listing is furnished herewith.</p> <p>The sequence listing does not include matter which goes beyond the content of the application as filed.</p> <p>The prescribed data carrier is enclosed.</p> <p>The information recorded on the data carrier is identical to the written sequence listing.</p>	<p>9. Séquences de nucléotides et d'acides aminés Les pièces requises selon les règles 5.2 et 13^{ème} PCT et la règle 111(3) CBE ont déjà été déposées auprès de l'OEB.</p> <p>La liste de séquences écrite est produite ci-joint.</p> <p>La liste de séquences ne contient pas d'éléments s'étendant au-delà du contenu de la demande telle qu'elle a été déposée.</p> <p>Le support de données prescrit est joint.</p> <p>L'information figurant sur le support de données est identique à celle que contient la liste de séquences écrite.</p>
<p>10. Benennungsgebühren</p> <p><input checked="" type="checkbox"/> 10.1 Es ist derzeit beabsichtigt, den siebenfachen Betrag einer Benennungsgebühr zu entrichten. Damit gelten die Benennungsgebühren für alle Vertragsstaaten des EPÜ¹ als entrichtet (Art. 2 Nr. 3 GebO), soweit sie in der internationalen Anmeldung bestimmt sind².</p> <p><input type="checkbox"/> 10.2 Abweichend von der Erklärung in Nr. 10.1 ist derzeit beabsichtigt, weniger als sieben Benennungsgebühren für folgende in der internationalen Anmeldung bestimmte Vertragsstaaten des EPÜ² zu entrichten:</p> <p>(1) <input type="text"/> _____</p> <p>(2) <input type="text"/> _____</p> <p>(3) <input type="text"/> _____</p> <p>Soweit unter Nr. 10.2 Vertragsstaaten aufgeführt sind, wird beantragt, für die dort nicht aufgeführten Vertragsstaaten von der Zustellung einer Mitteilung nach Regel 108(3) EPÜ abzusehen.</p> <p><input checked="" type="checkbox"/> 10.3 Wird ein automatischer Abbuchungsauftrag erteilt (Feld 12), so wird das EPA beauftragt, bei Ablauf der Grundfrist nach Regel 107 (1)d) EPÜ den siebenfachen Betrag einer Benennungsgebühr abzubuchen. Ist eine Erklärung nach Nr. 10.2 abgegeben worden, so sollen die Benennungsgebühren nur für die dort angegebenen Vertragsstaaten abgebucht werden, sofern dem EPA nicht bis zum Ablauf der Grundfrist ein anderslautender Auftrag zugeht.</p>	<p>10. Designation fees</p> <p>10.1 It is currently intended to pay seven times the amount of the designation fee. The designation fees for all the EPC contracting states¹ designated in the international application² are thereby deemed to have been paid (Art. 2 No. 3 RFees).</p> <p>10.2 The declaration in No. 10.1 does not apply. Instead, it is currently intended to pay fewer than seven designation fees for the following EPC contracting states² designated in the international application:</p> <p>(4) <input type="text"/> _____</p> <p>(5) <input type="text"/> _____</p> <p>(6) <input type="text"/> _____</p> <p>If contracting states are indicated under No. 10.2, it is requested that no communication under Rule 108(3) EPC be issued for contracting states not thus indicated.</p> <p>10.3 If an automatic debit order has been issued (Section 12), the EPO is authorised, on expiry of the basic period under Rule 107(1)(d) EPC, to debit seven times the amount of the designation fee. If states are indicated under No. 10.2, the EPO will debit designation fees only for those states, unless instructed otherwise before the basic period expires.</p>	<p>10. Taxes de désignation</p> <p>10.1 Il est actuellement envisagé de payer un montant correspondant à sept fois la taxe de désignation. Les taxes de désignation sont ainsi réputées payées pour tous les Etats contractants de la CBE¹ désignés dans la demande internationale² (art. 2, point 3 du RRT).</p> <p>10.2 Contrairement à ce qui est indiqué au n° 10.1, il est actuellement envisagé de payer moins de sept taxes de désignation pour les Etats contractants de la CBE² suivants désignés dans la demande internationale :</p> <p>(4) <input type="text"/> _____</p> <p>(5) <input type="text"/> _____</p> <p>(6) <input type="text"/> _____</p> <p>Si des Etats contractants sont mentionnés au n° 10.2, prière de ne pas procéder à la signification d'une notification prévue par la règle 108(3) CBE pour les Etats contractants n'y étant pas mentionnés.</p> <p>10.3 Si un ordre de prélèvement automatique est donné (rubrique 12), il est demandé à l'OEB de prélever, à l'expiration du délai normal visé à la règle 107(1)d) CBE, un montant correspondant à sept fois la taxe de désignation. Si une déclaration a été faite au n° 10.2, les taxes de désignation ne sont à prélever que pour les Etats contractants qui y sont indiqués, sauf instruction contraire reçue par l'OEB avant l'expiration du délai normal.</p>

¹ Stand bei Drucklegung: 27 Vertragsstaaten, und zwar: / Status when this form was printed: 27 contracting states, namely: / Situation à la date d'impression: 27 Etats contractants, à savoir: AT Österreich / Austria / Autriche, BE Belgien / Belgium / Belgique, BG Bulgarien / Bulgaria / Bulgarie, CH / LI Schweiz und Liechtenstein / Switzerland and Liechtenstein / Suisse et Liechtenstein, CY Zypern / Cyprus / Chypre, CZ Tschechische Republik / Czech Republic / République tchèque, DE Deutschland / Germany / Allemagne, DK Dänemark / Denmark / Danemark, EE Estland / Estonia / Estonie, ES Spanien / Spain / Espagne, FI Finnland / Finland / Finlande, FR Frankreich / France / France, GB Vereinigtes Königreich / United Kingdom / Royaume-Uni, GR Griechenland / Greece / Grèce, HU Ungarn / Hungary / Hongrie, IE Irland / Ireland / Irlande, IT Italien / Italy / Italie, LU Luxemburg / Luxembourg / Luxembourg, MC Monaco / Monaco / Monaco, NL Niederlande / Netherlands / Pays-Bas, PT Portugal / Portugal / Portugal, RO Rumänien / Romania / Roumanie, SE Schweden / Sweden / Suède, SI Slowenien / Slovenia / Slovénie, SK Slowakische Republik / Slovak Republic / République slovaque, TR Türkei / Turkey / Turquie

² Für folgende Staaten nur möglich, falls in der internationalen Anmeldung am oder nach folgendem Tag bestimmt: Slowakische Republik, Bulgarien, Tschechische Republik und Estland: 1. Juli 2002, Slowenien: 1. Dezember 2002, Ungarn: 1. Januar 2003 und Rumänien: 1. März 2003. / For the following states this is possible only if they are designated in the international application on or after the stated date: Slovak Republic, Bulgaria, Czech Republic and Estonia: 1 July 2002, Slovenia: 1 December 2002, Hungary: 1 January 2003 and Romania: 1 March 2003. / En ce qui concerne les Etats suivants seulement si la désignation a été effectuée dans la demande internationale à la date suivante ou à une date ultérieure: République slovaque, Bulgarie, République tchèque et Estonie: 1^{er} juillet 2002, Slovénie: 1^{er} décembre 2002, Hongrie: 1^{er} janvier 2003 et Roumanie: 1^{er} mars 2003.

<p><input checked="" type="checkbox"/> 11. Erstreckung des europäischen Patents Bei Zahlung der Erstreckungsgebühr(en) gilt diese Anmeldung auch als wirksamer Erstreckungsantrag für die in der internationalen Anmeldung bestimmten «Erstreckungsstaaten». Es ist beabsichtigt, diese Gebühren für folgende Staaten zu entrichten:</p> <p><input type="checkbox"/> SI Slowenien ¹⁾ <input checked="" type="checkbox"/> LT Litauen <input checked="" type="checkbox"/> LV Lettland <input checked="" type="checkbox"/> AL Albanien <input type="checkbox"/> RO Rumänien ¹⁾ <input checked="" type="checkbox"/> MK Ehemalige jugoslawische Republik Mazedonien ²⁾</p>	<p>11. Extension of the European patent On payment of the extension fee(s) this application is also deemed to be a request for extension to all the "extension states" designated in the international application. It is intended to pay the fee(s) for the following states:</p> <p>Slovenia ¹⁾ Lithuania Latvia Albania Romania ¹⁾ Former Yugoslav Republic of Macedonia ²⁾</p>	<p>11. Extension des effets du brevet européen La taxe (Les taxes) d'extension payée(s), la présente demande est également réputée être une demande d'extension à tous les «Etats autorisant l'extension» désignés dans la demande internationale. Il est envisagé de payer la taxe (les taxes) d'extension pour les Etats suivants:</p> <p>Slovénie ¹⁾ Lituanie Lettonie Albanie Roumanie ¹⁾ Ex-République yougoslave de Macédoine ²⁾</p>
<p>1) Für Slowenien und Rumänien nur möglich, falls in der internationalen Anmeldung bis 30. November 2002 (Slowenien) oder bis 28. Februar 2003 (Rumänien) bestimmt. / For Slovenia and Romania this is possible only if they are designated in the international application up to 30 November 2002 (Slovenia) or 28 February 2003 (Romania). / En ce qui concerne la Slovénie et la Roumanie, seulement si la désignation a été effectuée dans la demande internationale jusqu'au 30 novembre 2002 (Slovénie) ou jusqu'au 28 février 2003 (Roumanie).</p> <p>2) Platz für Staaten, mit denen «Erstreckungsabkommen» nach Drucklegung dieses Formblatts in Kraft treten und die in der internationalen Anmeldung bestimmt waren. / Space for States with which "extension agreements" enter into force after this form has been printed and which were designated in the international application. / Prévu pour des Etats à l'égard desquels des «accords d'extension» entreraient en vigueur après l'impression du présent formulaire et qui ont été désignés dans la demande internationale.</p>		
<p><input type="checkbox"/> 12. Automatischer Abbuchungsauftrag (Nur möglich für Inhaber von beim EPA geführten laufenden Konten)</p> <p>Das EPA wird beauftragt, nach Maßgabe der Vorschriften über das automatische Abbuchungsverfahren fällige Gebühren und Auslagen vom untenstehenden laufenden Konto abzubuchen. In Bezug auf die Benennungsgebühren wird auf Feld 10.3 verwiesen. Das EPA wird ferner beauftragt, die Erstreckungsgebühren für jeden in Feld 11 angekreuzten «Erstreckungsstaat» bei Ablauf der Grundfrist zu ihrer Zahlung abzubuchen, sofern ihm nicht bis dahin ein anderslautender Auftrag zugeht.</p> <p>Nummer und Kontoinhaber</p>	<p>12. Automatic debit order (for EPO deposit account holders only)</p> <p>The EPO is hereby authorised, under the Arrangements for the automatic debiting procedure, to debit from the deposit account below any fees and costs falling due. For designation fees, see Section 10.3. The EPO is also authorised, on expiry of the basic period for paying the extension fees, to debit those fees for each of the "extension states" marked with a cross in Section 11, unless instructed otherwise before the said period expires.</p> <p>Number and account holder</p>	<p>12. Ordre de prélèvement automatique (uniquement possible pour les titulaires de comptes courants ouverts auprès de l'OEB)</p> <p>Par la présente, il est demandé à l'OEB de prélever du compte courant ci-dessous les taxes et frais venant à échéance, conformément à la réglementation relative au prélèvement automatique. Pour les taxes de désignation, se reporter à la rubrique 10.3. Il est en outre demandé à l'OEB de prélever, à l'expiration du délai normal prévu pour leur paiement, les taxes d'extension pour chaque «Etat autorisant l'extension» coché à la rubrique 11, sauf instruction contraire reçue avant l'expiration de ce délai.</p> <p>Numéro et titulaire du compte</p>
<p><input type="checkbox"/> 13. Eventuelle Rückzahlungen auf das beim EPA geführte laufende Konto</p> <p>Nummer und Kontoinhaber</p>	<p>13. Any reimbursement to EPO deposit account</p> <p>Number and account holder</p>	<p>13. Remboursements éventuels à effectuer sur le compte courant ouvert auprès de l'OEB</p> <p>Numéro et titulaire du compte</p>
<p>14. Unterschrift(en) des (der) Anmelders(s) oder Vertreters</p> <p>Ort / Datum</p> <p>Für Angestellte (Art. 133(3) EPÜ) mit allgemeiner Vollmacht:</p> <p>Nr.</p> <p>Name(n) des (der) Unterzeichneten bitte in Druckschrift wiederholen. Bei juristischen Personen bitte auch die Stellung des (der) Unterzeichneten innerhalb der Gesellschaft in Druckschrift angeben.</p>	<p>14. Signature(s) of applicant(s) or representative</p> <p>Lionello Caregnato The Chairman of the board of directors</p> <p></p> <p>Place / Date Susegana, 15 April 2005</p> <p>For employees (Art. 133(3) EPC) having a general authorisation:</p> <p>No.</p> <p>Please print name(s) under signature(s). In the case of legal persons, the position of the signatory within the company should also be printed.</p>	<p>14. Signature(s) du (des) demandeur(s) ou du mandataire</p> <p>Lieu / Date</p> <p>Pour les employés (art. 133(3) CBE) disposant d'un pouvoir général:</p> <p>N°</p> <p>Le ou les noms des signataires doivent être indiqués en caractères d'imprimerie. S'il s'agit d'une personne morale, la position occupée au sein de celle-ci par le ou les signataires doit également être indiquée en caractères d'imprimerie.</p>

INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/11 03/00170

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E04D11/02 E04D5/10 E04D7/00 E04F15/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E04D E04F E04B E01C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A A	<p>JP 56 022685 A (SUMITOMO CEMENT) 3 March 1981 (1981-03-03) abstract</p> <p>-----</p> <p>EP 0 794 299 A (VOLTECO S.P.A.) 10 September 1997 (1997-09-10) cited in the application column 2, line 40 -column 3, line 40; figures</p> <p>-----</p>	<p>1-10, 15, 16 11-14</p> <p>1-9, 15, 16</p>

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search

29 July 2003

Date of mailing of the international search report

05/08/2003

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

based on patent family members

International Application No

PCT/JP 03/00170

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 56022685 A	03-03-1981	JP 1207837 C	29-05-1984
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EP 794299 A	10-09-1997	IT TV960031 A1	08-09-1997
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		PT 794299 T	31-10-2002
		SI 794299 T1	31-08-2002

PATENT COOPERATION TREATY

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PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

NORD RESINE S.p.A.
Via Fornace Vecchia, 79
I-31058 Susegana
Italy

Date of mailing (day/month/year)

22 March 2005 (22.03.2005)

Applicant's or agent's file reference

IMPORTANT NOTIFICATION

International application No.

PCT/IT2003/000170

International filing date (day/month/year)

24 March 2003 (24.03.2003)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address

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IT

State of Residence

IT

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

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EPO - DG 1

01.04.2005

103

State of Nationality

IT

State of Residence

IT

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Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

Change in corporate name. New phone number +39 438437511.

4. A copy of this notification has been sent to:

☒ the receiving Office ☒ the designated Offices concerned
☐ the International Searching Authority ☐ the elected Offices concerned
☐ the International Preliminary Examining Authority ☐ other:The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

SUAREZ Javier (Fax 338-71-30)

Facsimile No. (41-22) 338.71.30

Telephone No. (41-22) 338 8058



**NORD
RESINE®**



EPO - Munich
41
30. April 2005

To:
EUROPEAN PATENT OFFICE (E.P.O.)
D - 80298 MUNCHEN
GERMANY

Susegana, 15 April 2005

Subject: Entry into the European phase
International Publication Number WO 2004/057128

With regard to the entry into the European phase, You'll find enclosed the following documents:

- a) copy of the international documents published by the International Bureau, including the description, the original claims, the amended claims, the statement under article 19 (1), the drawings and the international search report;
- b) EPO Form 1200;
- c) EPO Form 1010, with copy of the money transfer order.

Kind regards

The Applicant
NORD RESINE S.p.A.

The Chairman of the board of directors
Lionello Caregnato

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